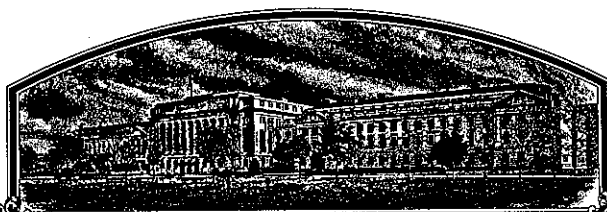


No.

8600015



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Jacob Hartz Seed Co., Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (T. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Hartz 8112'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 30th day of June in the year of our Lord one thousand nine hundred and eighty-six.

Attest:

Kenneth H. ...
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) JACOB HARTZ SEED COMPANY, INC.		2. TEMPORARY DESIGNATION H76-672-1		3. VARIETY NAME HARTZ 8112	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) P.O. BOX 946 / NORTH PARK AVENUE STUTTGART, AR 72160		5. PHONE (Include area code) (501) 673-8565		FOR OFFICIAL USE ONLY PVPO NUMBER 8600015	
6. GENUS AND SPECIES NAME GLYCINE MAX		7. FAMILY NAME (Botanical) LEGUMINOSEA		FILING DATE 11/04/85 TIME 10:00 <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. KIND NAME SOYBEAN		9. DATE OF DETERMINATION JANUARY 1983		AMOUNT FOR FILING \$ 1,800 DATE 11/04/85	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) CORPORATION				AMOUNT FOR CERTIFICATE \$ 200 DATE 5/9/86	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION DELAWARE				12. DATE OF INCORPORATION 1984	
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS DR. CURTIS WILLIAMS JACOB HARTZ SEED COMPANY, INC. P.O. BOX 946 STUTTGART, AR 72160 PHONE (Include area code): (501) 673-8565					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED					
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)					
b. <input checked="" type="checkbox"/> Exhibit B. Novelty Statement.					
c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety (Request form from Plant Variety Protection Office.)					
d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of Variety.					
e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of Applicant's Ownership.					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input checked="" type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No			17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> Foundation <input type="checkbox"/> Registered <input type="checkbox"/> Certified		
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? UNITED STATES SPRING 1985 <input checked="" type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					

SIGNATURE OF APPLICANT

Curtis Williams

SIGNATURE OF APPLICANT

M. Chamberlain
FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

DATE

10-28-85

DATE

10-28-85

EXHIBIT A
ORIGIN AND BREEDING HISTORY

'Hartz 8112' was developed from the cross 'Forrest' x 'Ransom'. It was derived from a single F2 plant harvested at Stuttgart in 1976. The F3 generation was grown as a single plant row in the winter nursery in Belize, C.A. and harvested in bulk. The F4 generation designated as H76-672, was grown in an observation plot at Stuttgart in 1977. H76-672 was segregating and a subline designated H76-672-1 was selected in 1978 which bred true.

Evidence of stability - Hartz 8112 has appeared stable and uniform through seven generations of testing and seed increases.

Kinds of variants - Seed with a grayish or faded black hilum may occur in a frequency of two per pound, but produce white flowered plants. Off-types up to three seed per pound may occur that have a different hilum and/or flower color.

EXHIBIT B
NOVELTY STATEMENT

'Hartz 8112' is most similar to 'Hartz 7126', but Hartz 8112 is susceptible to race 3 of the soybean cyst nematode whereas, Hartz 7126 is resistant.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, MEAT, GRAIN & SEED DIVISION
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) JACOB HARTZ SEED COMPANY, INC.	TEMPORARY DESIGNATION H76-672-1	VARIETY NAME HARTZ 8112
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) P.O. BOX 946 / NORTH PARK AVENUE STUTT GART, AR 72160		FOR OFFICIAL USE ONLY PVPO NUMBER 8600015

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)
3 = Elongate (L/T ratio > 1.2; T/W < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio < 1.2)
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow 2 = Green 3 = Brown 4 = Black 5 = Other (Specify) _____

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton') 2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

1 = Buff 2 = Yellow 3 = Brown 4 = Gray 5 = Imperfect Black 6 = Black 7 = Other (Specify) _____

★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow 2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low 2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP^{1a}) 2 = Type B (SP^{1b})

★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis') 2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')
4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

1 = Lanceolate 2 = Oval 3 = Ovate 4 = Other (Specify) _____

11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

★ 13. FLOWER COLOR:

☐ 1

1 = White

2 = Purple

3 = White with purple throat

★ 14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

★ 15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

★ 17. PLANT HABIT:

☐ 11 = Determinate ('Gnome'; 'Braxton')
3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

2 = Semi-Determinate ('Will')

★ 18. MATURITY GROUP:

☐ 1 ☐ 11 = 000
9 = VI2 = 00
10 = VII3 = 0
11 = VIII4 = I
12 = IX5 = II
13 = X

6 = III

7 = IV

8 = V

★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

BACTERIAL DISEASES:

★

☐ 2Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☐ 0Bacterial Blight (*Pseudomonas glycinea*)

★

☐ 0Wildfire (*Pseudomonas tabaci*)

FUNGAL DISEASES:

★

☐ 1Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojae*)

★

☐ 0

Race 1

☐

Race 2

☐

Race 3

☐

Race 4

☐

Race 5

☐

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 1Powdery Mildew (*Microsphaera diffusa*)

★

☐ 0Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 1 Race 1 ☐ 0 Race 2 ☐ 1 Race 3 ☐ 1 Race 4 ☐ 0 Race 5 ☐ 0 Race 6 ☐ 1 Race 7
- ☐ 0 Race 8 ☐ Race 9 ☐ Other (Specify) _____

VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 1 Race 3 ☐ 1 Race 4 ☐ Other (Specify) _____
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 1 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 1 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ OTHER DISEASE NOT ON FORM (Specify): _____

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 0 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) _____

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) _____

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape		Seed Coat Luster	
Leaf Shape		Seed Size	
Leaf Color		Seed Shape	
Leaf Size		Seedling Pigmentation	

23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS 1/ MATURITY	PLANT 1/ LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT 2/		SEED SIZE G/100 SEEDS 3/	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
HARTZ 8112 Submitted	11-3	1.2	112			40.1	21.6	14.4	3 and 2
RANSOM Name of Similar Variety	10-30	1.8	97			41.2	21.8	15.0	3 and 2

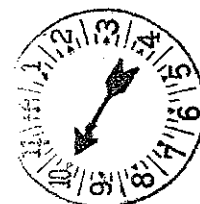
PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A₂ in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

- 1/ STUTTGART 1980-83
- 2/ AVERAGE OF 10 LOCATIONS
- 3/ AVERAGE OF 10 LOCATIONS

RECEIVED

NOV 4 1985



U.S. DEPARTMENT

AMS PVP0

EXHIBIT D

ADDITIONAL DESCRIPTION OF THE VARIETY

Hartz 8112 has excellent lodging resistance as shown in Table 1 and 2. The plant canopy of Hartz 8112 is more narrow than most Maturity Group VIII varieties.

TABLE 1: Comparison of Hartz 8112, 'Coker 338' and 'Foster' soybeans for Maturity, Plant Height and Lodging in Advanced Yield Tests at Stuttgart, 1983-84.*

VARIETY	MATURITY DATE	PLANT HEIGHT IN INCHES	LODGING **
HARTZ 8112	10-31	112	1.5
COKER 338	11-04	112	2.9
FOSTER	10-31	112	3.1

* AVERAGE OF 8 REPLICATIONS

** 1 = NO LODGING 5 = ALL PLANTS DOWN

TABLE TWO: Comparison of Hartz 8112 and Coker 338 soybeans for Maturity, Plant Height and Lodging in Commercial Variety Test at Stuttgart, 1982-84.*

VARIETY	MATURITY DATE	PLANT HEIGHT IN INCHES	LODGING **
HARTZ 8112	10-28	112	1.7
COKER 338	11-03	107	2.4

* AVERAGE OF 12 REPLICATIONS

** 1 = NO LODGING 5 = ALL PLANTS DOWN

EXHIBIT E
BASIS OF APPLICANTS OWNERSHIP

Jacob Hartz Seed Company, Incorporated, Stuttgart, Arkansas established a Plant Breeding Program in 1972 for the purpose of developing, releasing, and maintaining stocks of soybean varieties developed by its Plant Breeding Program.

Dr. Curtis Williams, Plant Breeder, was licensed to breed soybeans by the Arkansas State Plant Board, December 9, 1977. Dr. Williams and co-workers developed and tested this variety in trials at Stuttgart, Arkansas.

On April 23, 1983, Jacob Hartz Seed Company, Inc., was purchased by HybriTech Seed International, Inc., a wholly owned subsidiary of Monsanto, St. Louis, Missouri. Jacob Hartz Seed Company, Inc. was originally incorporated in 1948 in the State of Arkansas. In 1984 Jacob Hartz Seed Company, Inc. merged with the Monsanto-West Africa, Inc., a Delaware corporation. Jacob Hartz Seed Company, Inc., is the present name of the merged corporation which is a Delaware corporation.